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**Notes:**

1. Untranslatable words are replaced with asterisks (\*\*\*).
2. Texts in the figures are not translated and shown as it is.

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Dictionary: Last updated 02/13/2009 / Priority: 1. Mechanical engineering / 2. Manufacturing/Quality / 3. Technical term

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## FULL CONTENTS

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### [Claim(s)]

[Claim 1] Grip attaching structure to the shaft tube characterized by performing satin finish to the surface of the part which inserts the grip of a shaft tube.

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### [Detailed Description of the Invention]

#### [0001]

[Field of the Invention] This invention relates to the attaching structure to the shaft tube of a grip. Here, as an example of said shaft tube, handlebars, such as knobs, such as a shaft tube of pens and pencils, such as a mechanical pencil and a ball-point, a shaft tube of a fishing rod, a window, and a door, or a bicycle, etc. are mentioned.

#### [0002]

[Description of the Prior Art] There is JP,H8-25875,A as one example. It is the example which inserted the grip in the part which the shaft tube of pens and pencils grasps. "The Claims of the gazette The water solution of polyvinyl alcohol or hydroxyethyl cellulose is applied to the outside of the shaft tube of pens and pencils. Means of attachment of the tube-like object in the pens and pencils which press a tube-like object fit in the above-mentioned shaft tube after that, attach to a shaft tube, and are characterized by things. It is indicated as ". It is made hard to escape from again that it is hard to rotate after press fit while making the grip easy to press fit in a tube-like object by applying the existing adhesive water solution.

#### [0003]

[Problem to be solved by the invention] If it was in the above-mentioned conventional technique, there was effectiveness which was mentioned above, but it was what starts in detail as for the charge which applies a water solution to a shaft tube, and which the activity takes time and effort since like, and purchases the aforementioned water solution, and skyrockets the price of products as a result. Moreover, although it seems that the tube-like object is apparently stuck to a shaft tube, actually, it is not uniformly stuck to the whole contact surface, and the adherence part and the non-sticking part exist. Here, when said tube-like object was formed by transparency or a translucent member, an aforementioned adherence part and an aforementioned non-sticking part will become a spots pattern, and will be expressed, and it was by no means good-looking. In addition, it was what a spots pattern that it is based on a bonded part

and a non-adhesion part exists between a tube-like object and a shaft tube even if the aforementioned water solution compares and dries, and worsens appearance further.

[0004]

[Means for solving problem] This invention is made in view of the above-mentioned trouble, and makes it a summary to have performed satin finish to the surface of the part which inserts the grip of a shaft tube.

[0005]

[Working example] The 1st example is shown and explained to drawing 1 - drawing 3 . It is the example of a mechanical pencil. Inside the shaft tube 1, the heart delivery device 5 which consists of a heart tank 2, the chucking body 3, the chuck spring 4, etc. is arranged free [ sliding ]. The eraser 6 and the knock cap 8 with which the pore 7 was formed in the top panel are attached to the back end of the heart tank 2 of the heart delivery device 5 free [ attachment and detachment ]. A code 9 is the metal clip attached to the upper part of said shaft tube 1.

[0006] The diameter reduction part 10 is formed in the front part of said shaft tube 1, and the grip member 11 which consists of an elastomeric-properties object is pressed fit in the diameter reduction part 10. Moreover, what is necessary is just to belong to the range of 10 micrometers - about 60 micrometers, although satin finish is performed to the surface of the diameter reduction part 10 (crepe part 12) and the height of the detailed irregularity in the crepe part 12 has become about 30 micrometers on it. The periphery-like slot 13 is formed in the abbreviation front end part of said diameter reduction part 10, and the inner circumference projection 14 of the grip member 11 is engaging with the slot 13 of the shape of the periphery. Omission from the shaft tube 1 of the grip member 11 after insertion are prevented.

[0007] Although an easy approach fabricates a shaft tube 1 by injection molding as an example of said satin finish, when it is a product with a soft shaft tube 1, you may be means, such as blow molding. Moreover, it is desirable to form detailed irregularity in the inner surface of the cavity of the die which fabricates the diameter reduction parts 10, such as said injection molding and blow molding, by blast processing, electric discharge machining, or other means as a means to form the crepe part 12 in the surface of the diameter reduction part 10 of a shaft tube 1. Assessment of the ease of the assembly at the time of changing various height of a satin finish part into below and the appearance condition of a patchy pattern is shown in Table 1.

[0008]

[Table 1]

梨地加工部の凹凸の高さ (単位: $\mu\text{m}$ )	組み立て (挿着) の容易性	まだら模様 の出具合
5 未満	×①	×③
5	×②	×③
10	○	○
20	○	○
30	○	○
40	○	○
50	○	○
60	○	○
70	○	△④
80	○	×⑤
90	○	×⑤

[0009] x\*\*: x\*\* which sticks from an insertion initiation part and is very hard to insert : although the half grade of a diameter reduction part is inserted x\*\* which becomes more difficult to insert in the back like \*\* than it : [0010] in which irregularity of the x\*\*:crepe with which irregularity of \*\*\*\*:crepe with which a spots pattern appears in two or more places appears for a while appears clearly Next, as an example of the construction material of said grip member 11, construction material with penetrability, such as rubbers, such as silicone rubber and ethylene-propylene rubber, and thermoplastic elastomer, the construction material of translucency, or the construction material of the translucency of coloring which made a little color material mix in the aforementioned construction material is mentioned. When the part (grip member) grasped especially by hand is taken into consideration, silicone rubber, thermoplastic elastomer, etc. strong against the oil which comes out of a hand are desirable.

[0011]

[Function] Since the inner surface of a grip member moves the top part of the convex of detailed

irregularity of the diameter reduction part of a shaft tube in inserting a grip member in a shaft tube (i.e., when attaching), it is inserted smoothly. Moreover, since the grip member appears in the top part of said detailed convex after insertion, field contact does not become, but turns into point contact, therefore a spots pattern does not generate a grip member and a diameter reduction part. Moreover, [ compare with the whole surface contacting, and ] since there are few the contact-surface products since the inner surface of a grip member touches only the top part of the convex of detailed irregularity Color of a shaft tube cannot be easily reflected to a grip member, therefore, although a grip member is not visible to the same color and a shaft tube's is transparent, existence of a grip member can be checked easily, and the configuration of the whole product is not hurt. Since there are many parts stuck on the surface of a shaft tube when a transparent grip member is incidentally inserted in the shaft tube to which satin finish is not performed, a grip member looks the same as that of the color of a shaft tube, and hurts the presence of a grip member.

[0012] The 2nd example is shown and explained to [drawing 4](#) and [drawing 5](#) . Although satin finish (crepe part 12) is performed to the diameter reduction part 10 of the shaft tube 1 like the precedent, the vertical rib 15 is also formed in the longitudinal direction. The revolution to the shaft tube 1 of the grip member 11 after insertion of the grip member 11 is prevented. In addition, in this example, although the part in contact with the vertical rib of a grip member inner surface is deeply expressed [ the color of a shaft tube ] compared with other parts, since line contact is carried out in the top part of the vertical rib, this contact part does not become a patchy pattern. In addition, in the example shown in [drawing 2](#) or [drawing 4](#) , although satin finish was not performed to the front part (the near periphery-like slot 13) of the diameter reduction part which attaches a grip member, you may perform satin finish also to this front part.

[0013]

[Effect of the Invention] Since this invention performed satin finish to the surface of the part which inserts the grip of a shaft tube, it is an inexpensive means and can offer a product with the sufficient appearance appearance which a spots pattern does not generate between a grip and a shaft tube.

#### [Brief Description of the Drawings]

[[Drawing 1](#)] Drawing of longitudinal section showing the 1st example of this invention.

[[Drawing 2](#)] The important section enlarged drawing showing the shaft tube of [drawing 1](#) .

[[Drawing 3](#)] Grip member \*\*\*\* drawing of longitudinal section of [drawing 1](#) .

[[Drawing 4](#)] The important section enlarged drawing showing the 2nd example of this invention.

[[Drawing 5](#)] The A-A line sectional view of [drawing 4](#) .

#### [Explanations of letters or numerals]

1 Shaft Tube

2 Heart Tank

3 Chucking Body

4 Chuck Spring

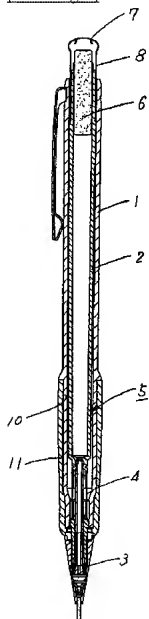
5 Heart Delivery Device

6 Eraser

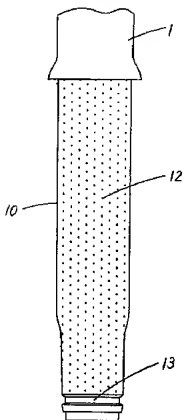
7 Pore

- 8 Knock Cap
  - 9 Clip
  - 10 Diameter Reduction Part
  - 11 Grip Member
  - 12 Crepe Part
  - 13 Periphery-like Slot
  - 14 Inner Circumference Projection
  - 15 Vertical Rib
- 

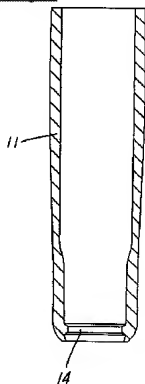
[Drawing 1]



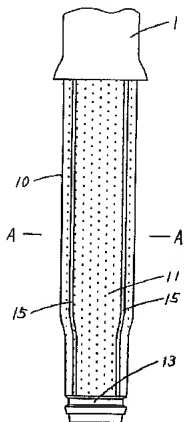
[Drawing 2]



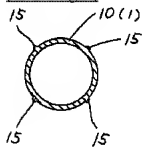
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]